ENGLISH

VER. 150610

# USER MANUAL

## MODELS: 120V / 220V

- OPTIMA 1K / 1.5K / 2K / 3K
- OPTIMA 1K-HB / 2K-HB / 3K-HB
- OPTIMA 1KF / 2KF / 3KF
- OPTIMA 1KF-CN / 2KF-CN / 3KF-CN

## ONLINE DOUBLE CONVERSION UPS

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# This manual covers 4 UPS families related to OPTIMA UPS 1K to 3K:

## OPTIMA 1K / 1.5K / 2K / 3K

Online double conversion UPS (IGBT technology) with full set of functions and capabilities. This model includes special functions like: Frequency conversion, EPO (Emergency Power OFF), Programmable Outlets.
Inverter Technology: Half-Bridge Common Neutral
Main Features of Half-Brdige Common Neutral UPS:
- Output Neutral is connected to Input Neutral in normal Online mode. That makes voltage between output Neutral and Ground is similar to N-G voltage at input side.
- This is a perfect online UPS for PC related applications: PCs, Workstations, Servers, etc.
- Not suitable for high inductive loads. This kind of loads generates unbalance in DC bus of UPS (Error 04).
- Not compatible with loads based on half-wave rectified power supplies. They generate unbalance in UPS DC bus (Error 04).

## OPTIMA 1K-HB / 2K-HB / 3K-HB

This HB series is similar Half-Bridge Common Neutral technology than above Optima series 1K/1.5K/2K/3K but with smaller case size for 1K and 2K models. This model does not have neither EPRO connector nor programmable outlets function. All other features and functions are similar to above Optima series .

## OPTIMA 1KF / 2KF / 3KF

Online double conversion UPS (IGBT technology) with full set of standard functions and capabilities.
Inverter Technology: Full-Bridge (isolated neutral)
Main Features of Full-Brdige UPS:
- Output Neutral is not connected to Input Neutral in normal Online mode. That generates a floating voltage between output Neutral and Ground higher than N-G voltage at input side.
- This is a perfect online UPS for PC related applications: PCs, Workstations, Servers, etc.
- Suitable for managing high inductive loads like external isolation transformers.
- Compatible with loads based on half-wave rectified power supplies.

## OPTIMA 1KF-CN / 2KF-CN / 3KF-CN

Online double conversion UPS (IGBT technology) with full set of standard functions and capabilities.
Inverter Technology: Full-Bridge Common Neutral
Main Features of Full-Brdige Common Neutral UPS:
- Output Neutral is connected to Input Neutral in normal Online mode. That makes voltage between output Neutral and Ground is similar to N-G voltage at input side.
- This is a perfect online UPS for PC related applications: PCs, Workstations, Servers, etc.
- Suitable for managing high inductive loads like external isolation transformers.
- Compatible with loads based on half-wave rectified power supplies.

## These 4 families are available for different AC voltage systems and offering options for AC outlets

a) 220V/230V/240Vac (50Hz / 60Hz)
- Outlets: Schuko (Europe)
- Outlets: NEMA (countries with 220Vac in Latin America)
- Outlets: IEC

b) 110V/120V/127Vac (50Hz / 60Hz)
- Outlets: NEMA for USA & other 120Vac countries in Latin America
- Outlets: IEC

## FEATURES BY PRODUCTS FAMILY

| UPS FAMILY | UPS TECH. | INVERTER TYPE | INTERNAL BATT QTY | INVERTER VOLTAGE | EXBATT OPTION | ECO | EPO | FC | PROGR. OUTLETS |
|---|---|---|---|---|---|---|---|---|---|
| **OPTIMA 1K** | ONLINE | (HBCN) | 3 | 36VDC | YES | YES | YES | YES | YES |
| **OPTIMA 1.5K** | ONLINE | (HBCN) | 3 | 36VDC | YES | YES | YES | YES | YES |
| **OPTIMA 2K** | ONLINE | (HBCN) | 6 | 72VDC | YES | YES | YES | YES | YES |
| **OPTIMA 3K** | ONLINE | (HBCN) | 6 | 72VDC | YES | YES | YES | YES | YES |
| | | | | | | | | | |
| **OPTIMA 1KF-HB** | ONLINE | (HBCN) | 2 | 24VDC | YES | YES | NO | YES | NO |
| **OPTIMA 2KF-HB** | ONLINE | (HBCN) | 4 | 48VDC | YES | YES | NO | YES | NO |
| **OPTIMA 3KF-HB** | ONLINE | (HBCN) | 6 | 72VDC | YES | YES | NO | YES | NO |
| | | | | | | | | | |
| **OPTIMA 1KF** | ONLINE | (FB) | 2 | 24VDC | YES | YES | NO | NO | NO |
| **OPTIMA 2KF** | ONLINE | (FB) | 4 | 48VDC | YES | YES | NO | NO | NO |
| **OPTIMA 3KF** | ONLINE | (FB) | 6 | 72VDC | YES | YES | NO | NO | NO |
| | | | | | | | | | |
| **OPTIMA 1KF-CN** | ONLINE | (FBCN) | 2 | 24VDC | YES | YES | NO | NO | NO |
| **OPTIMA 2KF-CN** | ONLINE | (FBCN) | 4 | 48VDC | YES | YES | NO | NO | NO |
| **OPTIMA 3KF-CN** | ONLINE | (FBCN) | 6 | 72VDC | YES | YES | NO | NO | NO |

HBCN: Half Bridge Common Neutral. Inverter with half bridge topology. Output neutral is connected to input neutral in normal mode.
FB: Full Bridge. Inverter with full bridge topology. Output neutral is not connected to input neutral.
FBCN: Full Bridge Common Neutral: Inverter with full bridge topology. Output neutral is connected to input neutral in normal mode.
ECO: Economy or Ecological Mode. Optional mode that generates energy saving compared with normal mode.
EPO: Emergency Power OFF: It is a function than shutdown UPS outlets when activated
FC: Frequency Conversion Function: It allows UPS to generate an output frequency different than input frequency.

## 1. SAFETY / QUALITY / PERFORMANCE STANDARDS

| | |
|---|---|
| **SAFETY - LOW VOLTAGE DIRECTIVE (2006/95/EC)** | |
| **UPS Part 1-1: General & Safety UPS in accessible areas** | **IEC/EN 62040-1** |
| **ELECTROMAGNETIC COMPATIBILITY - EMC DIRECTIVE (2004/108/EC)** | |
| **UPS, Part 2, Electromagnetic Compatibility:** | **IEC/EN 62040-2** |
| Low Freq. Conducted Disturbances & Signals: | IEC/EN 61000-2-2 |
| Input Harmonic Current | IEC/EN 61000-3-2 |
| Electrostatic discharge immunity Test: | IEC/EN 61000-4-2 (Level 3) |
| Radiated radio Frequency immunity: | IEC/EN 61000-4-3 (Level 3) |
| Electrical Fast Transient / burst immunity: | IEC/EN 61000-4-4 (Level 4) |
| Surge immunity: | IEC/EN 61000-4-5 (Level 4) |
| Conducted Immunity: | IEC/EN 61000-4-6 |
| Power frequency magnetic field immunity: | IEC/EN 61000-4-8 |
| Voltage Dips, Short Interruptions & Voltage Variations Immunity: | IEC/EN 61000-4-11 |
| **UPS Part 3: Methods of operation, specifications and test requirement** | **IEC/EN 62040-3** |
| **IT Equipments. SAFETY. Part 1: General Requirements** | **IEC/EN 60950-1** |
| **IP PROTECTION** | IP20 static (IEC 60529) |
| **TRANSPORTATION** | IEC/EN 60068-2-32 (Drop Test)<br>IEC/EN 60068-2-64 (Vibration Test)<br>IEC/EN 60068-2-27 (Shock Test) |
| **QUALITY MANAGEMENT:** | Manufactured under: **ISO 9001 : 2000** |
| **ENVIRONMENTAL MANAGEMENT:** | Manufactured under: **ISO 14001 : 2004** |

Any modification made by user or operator may affect compliance of the safety and performance certifications listed above. UPS manufacturer is not responsible of any modification made on the product or its accessories after it is manufactured.
This product is designed to operate in domestic and commercial environment.

## 2. SAFETY INSTRUCTIONS

**WARNING**: This product has been designed to operate safely and reliably for years. Nevertheless, as it is an electrical device, it is required to read and understand this manual. Keep manuals as references for future consults.

**WARNING**: This product has been designed to be used indoors, protected of water, direct sun light and extreme temperatures. This device must not be used outdoors, close to moisture of heat sources.

**WARNING**: Do not set objects on this UPS. Handle with care. Do not block UPS ventilation.

**WARNING**: Make sure to connect this unit to proper power line according to selected model. The UPS Technical Specs sticker shows power rating information. DO NOT connect this UPS to any of its own power outlets.

**WARNING**: UPS must be installed following instruction from this manual.
The manufacturer is not liable for any damage that might rise from misusing this unit or defective installation.

**WARNING:** Do not connect AC motor based equipments without a careful sizing of the UPS based on inrush current instead of average current. Inrush current typical of motor based system could overload this UPS.

**WARNING**: UPS must be checked, repaired and maintained by qualified personnel only. This product is locked by screws.

**WARNING – ELECTRIC SHOCK RISK**:
Inside the UPS there are dangerous high voltages even when disconnected of power line, due to internal batteries

**WARNING:** In case of emergency turn off the UPS pressing Power Button, unplug it and call technical support.

**Laser Printers, Scanners and Copiers are high peak power devices. Make sure your UPS output capacity in watts can manage peak consumption of connected loads.**

**NEVER connect output NEUTRAL with system GROUND. This will damage UPS after few weeks. If load requires 0V between NEUTRAL and GROUND, an isolation transformer must be installed at UPS output. Then you can connect NEUTRAL and GROUND in the secondary of the transformer.**

### DISPOSAL

We strongly recommend disposing this UPS according to regulations in your country to prevent possible environmental damages; besides some parts might be recycled.

### BATTERY WARNING:

DO NOT dispose batteries in fire as it might explode. DO NOT try to open batteries, there are dangerous liquids inside.

## 3. PRODUCT DESCRIPTION

This is an online double conversion UPS designed to work under harsh environments that offers sophisticated features and high reliability. It works generating a high quality and uninterrupted pure sine-wave output. It is perfect to protect hardware and your valuable data in workstations, multi-PCs systems or critical servers.
This UPS is 100% compatible with low quality AC input sources like those based on power plants.
UPS parameters can be configured either by front panel LCD or remotely by software. All key system values can be also supervised by either LCD or by control software.
Additionally to high quality uninterrupted output, this product is able to protect your hardware from electrical surges and dangerous spikes by powerful surge suppression stage based on MOV technology.
Output voltage or frequency can be selected according to the model
In terms of communication you have a wide range of alternatives like: RS-232, USB, Ethernet LAN, or AS-400 interface (some of them are optional).
Please follow carefully this manual during installation, configuration, start-up and required maintenance to enjoy of this excellent and modern UPS.

### FRONT PANEL: PUSH BUTTON FUNCTIONS

### <ON / MUTE>

a) **POWER ON:** Keep selected during **2** seconds or longer.
b) **BEEP MUTE:** In battery mode: Keep selected during 5 seconds or longer to Mute acoustic alarm beep. Some alarms cannot be muted as Bypass Warning or ERROR alarms.
c) **AUTO-TEST:** In normal mode: Keep selected during **5** seconds or longer to activate Auo-Test function.

### <OFF / ENTER>

a) **POWER OFF:** Keep selected during **2** seconds to power off UPS
b) **ENTER:** Enter function works under configuration mode only. It works as confirmation or selection key for accepting current option on LCD.

### <SELECT>

a) **PARAMETERS AND VALUES:** It is used to show on LCD UPS input and output values as AC Input, DC battery voltage, Input Frequency, UPS output, output frequency, etc.
**b)** **CONFIGURATION MENU**: Keep selected during **5** seconds or longer

### <ON / MUTE> + <SELECT>

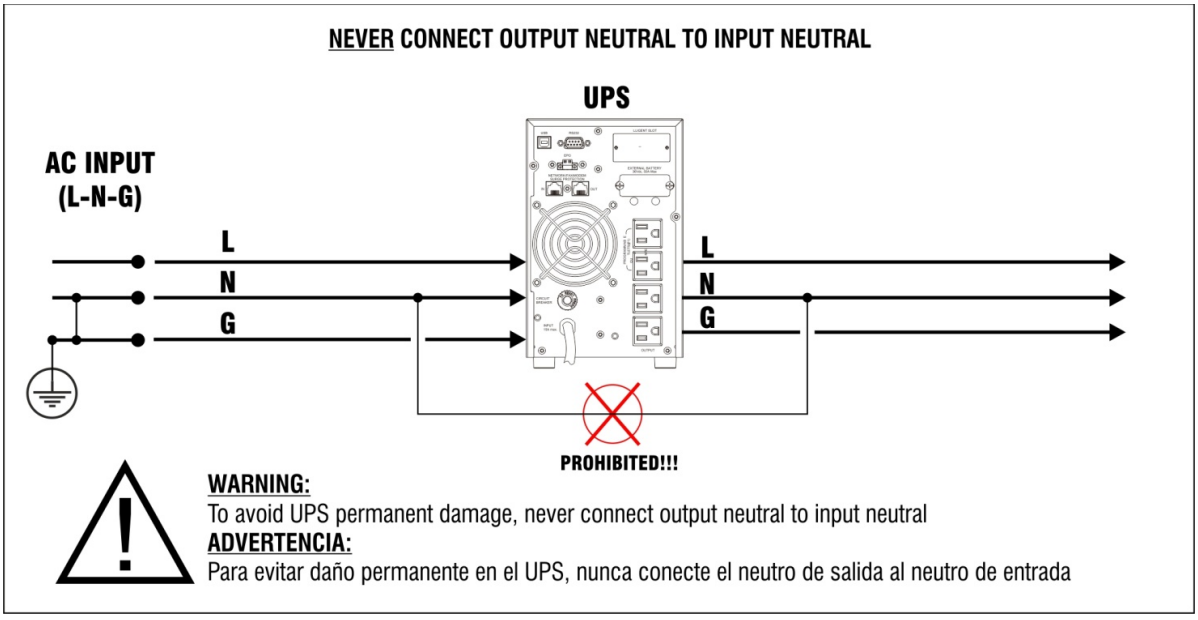
**BY-PASS MODE:** Under normal mode, by selecting these 2 keys at the same time during **5** seconds or longer UPS changes from normal mode to bypass mode.

## 4. INSTALATION

### WARNINGS FOR FULL BRIDGE MODELS: (1KF to 3KF) & (1KF-CN to 3KF-CN)

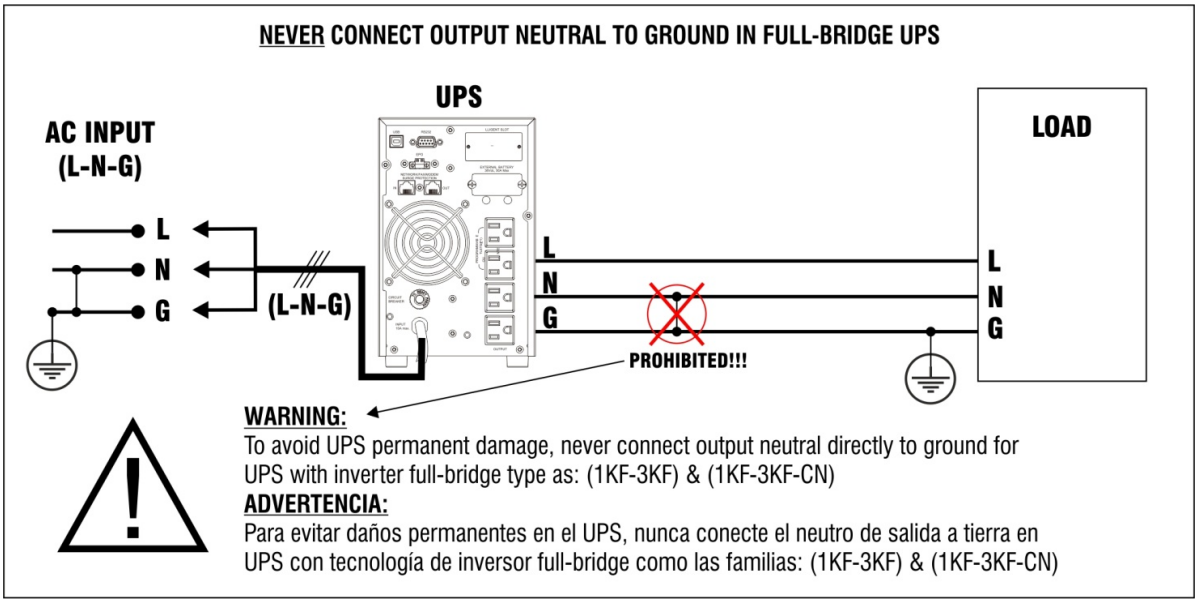
**FULL BRIDGE MODELS: For all full-bridge models (1KF-3KF & 1KF-CN to 3KF-CN), It is not allowed to connect output Neutral line to input Neutral line. This practice can damage UPS. This kind of damage is not covered by warranty.**

**FIG-1**



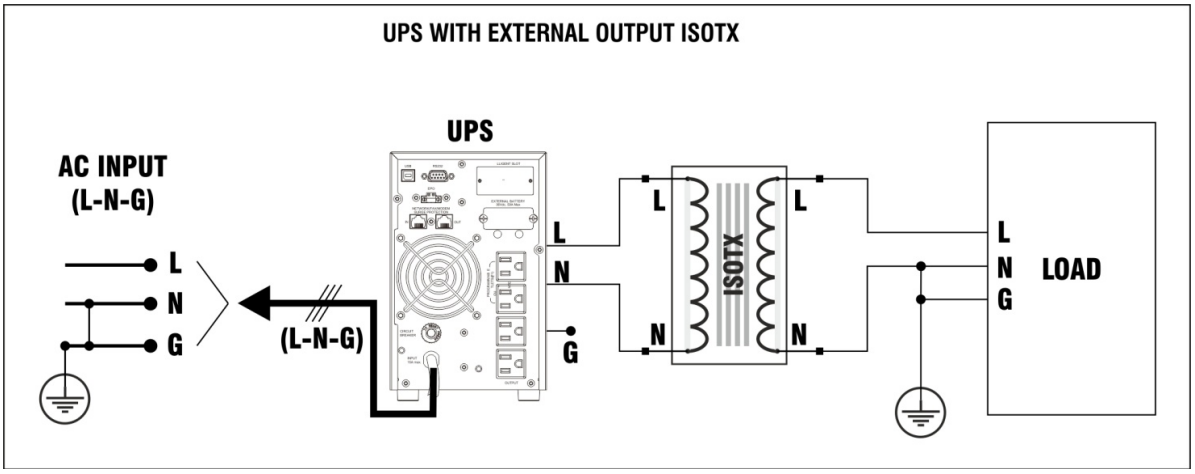

**FULL BRIDGE MODELS: For all full-bridge models (1KF-3KF & 1KF-CN to 3KF-CN) it is not allowed to connect output Neutral to system Ground. This practice will generate internal damage in the UPS. In full-bridge UPS output Neutral is not same than input Neutral so a floating voltage will be generated between N-G at output side of the UPS. This voltage is not harmful for your equipment connected to UPS. If you need 0Vac in N to G for your equipment, please check recommendation of FIG 3.**
**HALF BRIDGE models allow connection of their output Neutral line with system ground (G).**

**FIG-2**



**FULL BRIDGE MODELS: For all full-bridge models (1KF-3KF & 1KF-CN to 3KF-CN), If your system requires N-G voltage close to 0Vac, we suggest to install an isolation transformer at the UPS output. Neutral line of secondary of the transformer can be connected to Ground (See FIG 3).**

**FIG-3**




## INSTALATION:

Install this unit in any protected environment with a dust free air flow. Also corrosive vapours and conductive contaminants must be avoided. Do not use UPS outdoors or where either temperature or humidity exceeds tech specs. Install UPS at least 10 inches away from your monitor to avoid magnetic interference.

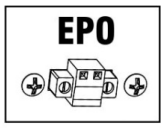
1.- Plug input AC power cord to an appropriate power outlet with Line-Neutral-Ground contacts.

- Some models come with input power-cord with appropriate plug for your country.
- 3KVA in 120V could come with input terminal block. For 3KVA-120V models input cable to be connected to input Terminal Block must be AWG12 or wider (for lengths shorter than 50 feet – 15m). Wire size is strongly affected by length and temperature. Input wire must be selected and installed by qualified personnel according to local regulations.

2.- First time leave UPS recharging batteries during 6 hours before connecting your devices to the UPS to let batteries recover charging level to offer full battery backup time.

3.- Connect your devices to be protected to UPS outlets. Take care to not overload UPS output by connecting devices with higher power ratings than UPS power capacity. Laser printers, scanners and copiers frequently have two different power ratings: in stand-by power ratings are very low compared with consumption rating during operation. If this kind of products will be connected to the UPS operation power rating must be considering to size total power consumption to be connected to UPS.

4.- EPO Function: Emergency Power Off function allows to power off UPS outlets when EPO input is open. When EPO port is closed EPO function is disable. When EPO function is activated UPS will perform following actions:




a) Power Off all outlets,
b) Switch to STAND-BY mode,
c) Acoustic alarm is activated as continuous beep
d) Warning message Nº 20 is indicated on LCD.
To disable EPO mode and recovering normal mode contact switch or jumper in EPO port must be closed and UPS must be powered On by selecting ON push button.

## OPTIONAL KIT FOR EXTERNAL BATTERIES PACKS

There is a connector optional kit available for OPTIMA & OPTIMA-F series that allows connection of external battery packs to the UPS. This optional kit can be get as option to be connected in UPS rear panel. This kit offers a DC connector for the rear panel and attached cable to be connected to internal batteries. In that way internal batteries will be available to be connected to external batteries by DC connector.

## INSTRUCTIONS TO CONNECT EXTERNAL BATTERIES

If UPS already has DC connector installed for External Batteries (EXBATT) follow instructions of this section. If not, install connection kit according to its manual.

**IMPORTANT:** Every UPS model has its own DC connector kit with different size and color. This avoids to connect the wrong EXBATT to your UPS. User must be sure about the kind of EXBATT to be connected to UPS. In case of doubts we recommend to revise product label and instructions of this manual or ask to XMART distributor.

**IMPORTANT:** All OPTIMA-HB models come with a firmware protection that limits maximum runtime up to 5 minutes when load connected to UPS is above 80% of maximum UPS capacity. When connected load is below 80%, UPS will provide the runtime batteries can offer until reaching low battery level.

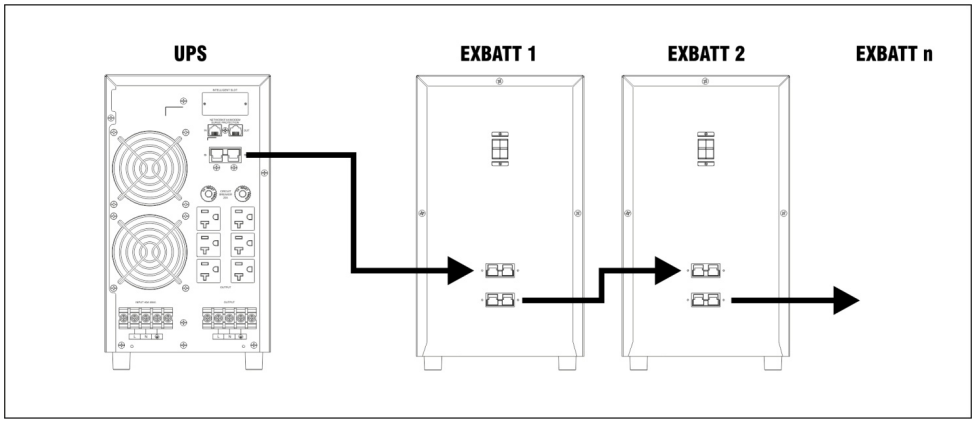
| UPS | BATTERY VOLTAGE |
|---|---|
| **OPTIMA 1K** | 36 VDC |
| **OPTIMA 1.5K** | 36 VDC |
| **OPTIMA 2K** | 72 VDC |
| **OPTIMA 3K** | 72 VDC |

| UPS | BATTERY VOLTAGE |
|---|---|
| **OPTIMA 1K-HB** | 24 VDC |
| **-** | - |
| **OPTIMA 2K-HB** | 48 VDC |
| **OPTIMA 3K-HB** | 72 VDC |

| UPS | BATTERY VOLTAGE |
|---|---|
| **OPTIMA 1KF** | 24 VDC |
| **-** | - |
| **OPTIMA 2KF** | 48 VDC |
| **OPTIMA 3KF** | 72 VDC |

| UPS | BATTERY VOLTAGE |
|---|---|
| **OPTIMA 1KF-CN** | 24 VDC |
| **-** | - |
| **OPTIMA 2KF-CN** | 48 VDC |
| **OPTIMA 3KF-CN** | 72 VDC |

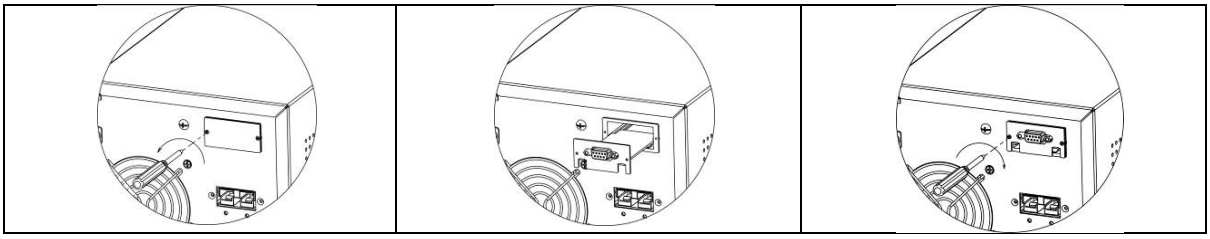
1) Place EXBATT close to the UPS
2) We recommend to measure DC voltage on both EXBATT and UPS before making any connections. Input breaker on EXBATT must be in ON position before measuring DC voltage. Verify both voltages are similar according to above tables.
3) Turn OFF input breaker in all EXBATT to be connected. Connect UPS to first EXBATT using EXBATT cable included in EXBATT box.
4) Connect second EXBATT to first EXBATT in similar way.
5) After connecting all EXBATT, Turn ON all input breakers on EXBATT.




## COMUNICATION PORTS

Models (F) and (F-CN) come with USB port inserted in intelligent slot. If a different communication port is required as RS232, LAN Card, etc, you must remove USB port to connect new port.

Models OPTIMA & OPTIMA-HB already include RS232+USB on rear panel. Intelligent slot is only required for connecting LAN card, Relay card, etc.



## 5. CONFIGURATION

Any configuration modification must be applied with UPS connected to AC line but in OFF or STAND-BY mode.
This UPS can be configured to work under some different modes. Some important functions can also be configured in CONFIGURATION MODE:

a) Normal Mode: Also known as AC MODE. Under this mode UPS works as ONLINE UPS. UPS outlets are supplied by AC power generated by UPS inverter circuit offering a clean power to your devices.

b) ECO Mode: Under this mode UPS works as OFF-LINE UPS. UPS outlets are supplied by AC input source. UPS supervises input source to switch to ONLINE mode only when input source is out of range This is not a recommendable mode for those critical applications that require ONLINE UPS.
Default mode set as factory is NORMAL MODE (Online UPS).

c) Output Voltage: It can be configured to any of 4 available values:
In 120Vac Models: 110Vac, 115Vac, 120Vac, 127Vac,
In 220Vac Models: 208Vac, 220Vac, 230Vac ó 240Vac

d) Output Frequency: It can be selected to 50Hz or 60Hz. Default configuration allows auto-selection to match with frequency of input AC source. NOTE: When conversion frequency mode is activated UPS power capacity could be reduced

e) Programmable Outputs: There are 2 groups of outlets:

- Standard Outlets: They work as expected in any UPS. This kind of outlets under battery keep powered until batteries reach very low level or up to UPS receives power off command from software.
- Programmable Outlets: If programmable outlets function is configured, programmable outlets can be powered off by internal timer before UPS detects very low battery level. Most common application for programmable outlets is for connecting non critical devices to them so that backup time can be longer for those critical devices connected in standard outlets.

## 6. OPERATION

This is UPS is ONLINE DOUBLE CONVERSION type and it has been designed to offer the most clear power without switching transitions or dead times. In that way your hardware but also your valuable data will be safe when your PC related equipment is connected to OPTIMA series UPS.
Power output is sine-wave type same as supplied by AC main source.
Depending of AC input source, this UPS can work under one of two following modes:

Stand-By Mode: UPS goes to Stand-By mode when it is just connected to AC input source. BYPASS mode must not be previously activated. If BYPASS is activated, UPS will go to BYPASS mode just after UPS is connected to input source.

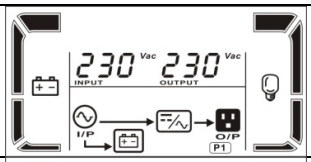
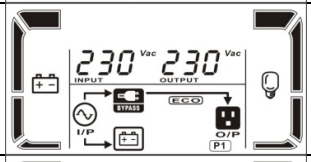
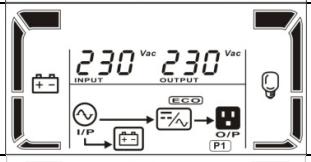
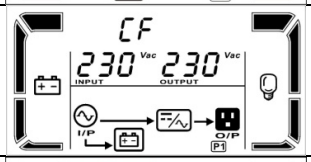
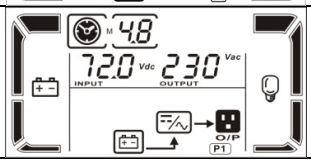
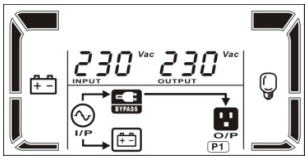
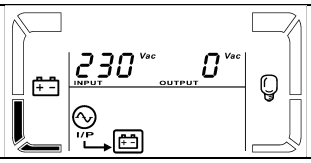
Normal AC Mode (Online) : It is the default mode when AC input source is OK and ON button is selected. If ON button is not selected, UPS will remain in stand-by mode or bypass (if bypass has been configured as ENABLE)
Under normal online mode, power output is generated by UPS inverter. Inverter takes power from AC/DC converter feed by AC input source. AC input source is only used under this mode to recharging batteries when necessary.

Battery Mode: Also known as Inverter Mode. It is the mode when AC input source is out of range or black-out is detected by the UPS. Under this mode power output is generated by UPS inverter that takes power from batteries.
There is no dead time (transition time is ZERO ms) related to switching from normal mode to battery mode since load is always powered from inverter. This is main characteristic of an ONLINE UPS.

BYPASS Mode: Bypass is a working state where UPS supply outlets directly from input AC source. In this mode Inverter does not supply outlets from inverter.
Bypass mode can be forced by user from Online mode by selecting ON & SELECT buttons at same time during 5 minutes. It can be also activated by configuring BYPASS as enable in configuration menu and connecting UPS to AC source without activating ON button.
Bypass mode can be also forced in automatic way by UPS in case it detects external overload or internal failure.

ECO Mode: This UPS also offer a third operation mode name ECO MODE. Under this mode (selectable by LCD configuration menu) UPS works as OFF-LINE UPS. Load is powered from AC input and UPS only switch to battery mode when input is out of range or in black-out status. Transition time from ECO mode to Battery mode is not zero. Typically is about 4ms that is why ECO Mode is not recommended for critical applications.

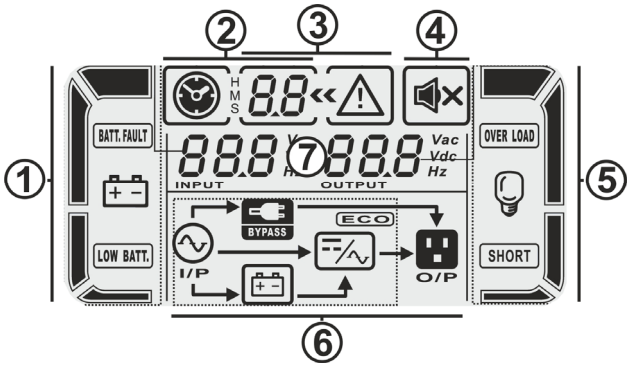
## 7. OPERATION MODES AND LCD

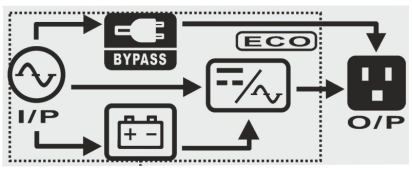
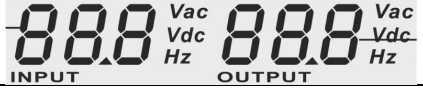
| Operation Mode | Description | LCD |
|---|---|---|
| **ONLINE** | * UPS ON<br>* Input AC source OK<br>* UPS output generated by inverter |  |
| **ECO** | * UPS in ON<br>* ECO mode activated.<br>* Input AC source is OK<br>* UPS output feed from AC input to save energy. |  |
| | * UPS in ON<br>* ECO mode activated.<br>* Input AC source out of acceptable range<br>* UPS output generated by inverter. |  |
| **FREQUENCY CONVERTER FUNCTION** | CF function enabled to generate output frequency as selected.<br>*** This function is available only for Full Bridge models (Optima and Optima HB). Not available for Optima F and Optima F-CN. |  |
| **BATTERY MODE** | When AC input source is out of range Ups goes to battery mode to supply output from taking energy from batteries. |  |
| **BYPASS** | If UPS is overloaded by big consuming load connected at UPS output, UPS changes to BYPASS mode feeding outlets from input AC source. This mode can be set also by front panel (by selecting “ON/MUTE” + “SELECT” at same time). |  |
| **STAND-BY** | * UPS is OFF<br>* No power in UPS outlets.<br>* Input AC source is OK.<br>* Batteries are been charged |  |

| TEXT | MEANING |
|---|---|
| **ENA** | Enable (Habilitado) |
| **DIS** | Disable (Des-habilitado) |
| **ESC** | Escape (Salir) |
| **HLS** | High Limit for Baypass (Límite Alto para Bypass) |
| **LLS** | Low Limit for Baypass (Límite Bajo para Bypass) |
| **BAT** | Battery (Batería) |
| **CF** | Converter (Convertidor de Frecuencia) |

| TEXT | MEANING |
|---|---|
| **EP** | EPO (Emergency Power Off) |
| **FA** | Fan (Ventilador) |
| **TP** | Temperature (Temperatura) |
| **CH** | Charger (Cargador de Baterías) |
| **FU** | Frecuencia de entrada en modo BYPASS |
| **EE** | Error en la memoria EOPTIMAM del UPS |
| **BAH** | Valor en AH (Amperios-Hora) de las baterías |

## 8. LCD DESCRIPTION



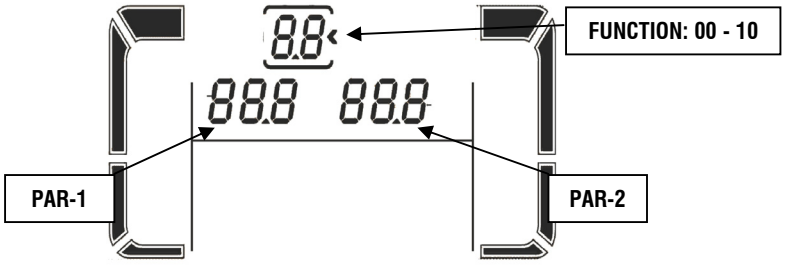

| | | |
|---|---|---|
| 1 | | **Indicates battery charging level by 4 segments bar:**<br>**76-100%.**<br>**51-75%**<br>**26-50%,**<br>**0-25%,**<br><br>**BATT FAULT y LOW BATT indicate abnormal battery situation** |
| 2 | | **Indicates UPS time under battery mode:**<br>**H: hours, M: minutes, S: seconds**<br>**Depending of the model or firmware, it could indicates remaining time in battery mode until reaching battery low level.** |
| 3 | | **Alert triangle symbol indicates alarm or error.**<br>**Two (2) digits code indicates error / alarm code.** |
| 4 | | **This symbol indicates buzzer alarm state: active or muted** |
| 5 | | **Indicates power supplied by UPS by 4 segment bar:**<br>**75% - 100%**<br>**50% - 75%**<br>**25% - 50%**<br>**0% - 25%**<br><br>• **OVERLOAD & SHORT indicate abnormal situation at UPS output.** |
| 6 |   | **UPS mode is indicated graphically:**<br><br>• **Normal**<br>• **Bypass**<br>• **ECO**<br>• **Battery.** |
| 7 |   | **3 digits code at left show input values**<br>**3 digits at right indicates output values** |

## 9. UPS CONFIGURATION

Configuration menu is activated by selecting SELECT push button at front panel during 5 seconds or longer. UPS must be connected to input AC source but in stand-by mode (powered off).

**You can navigate in configuration menu by using ↑ ↓ keys in front panel.**

Each configuration screen is identified by 2 digits number: 01, 02, etc
On each screen 2 parameters are indicated (PAR-1 and PAR-2):




### IMPORTANT NOTE::

**EVERY UPSFAMILY HAS ITS OWN CONFIGURATION MENU WITH DIFFERENT FUNCTIONS AND OPTIONS**

### CONFIGURATION MENU BY MODEL :

| MENU | OPTIMA<br>1K / 1.5K / 2K / 3K | OPTIMA<br>1K-HB / 2K-HB / 3K-HB | OPTIMA (F)<br>1KF / 2KF / 3KF | OPTIMA<br>1KFCN / 2KFCN / 3KFCN |
|---|---|---|---|---|
| 0 | ESC MENU<br>(EXIT screen) | ESC MENU<br>(EXIT screen) | ESC MENU<br>(EXIT screen) | ESC MENU<br>(EXIT screen) |
| 1 | Output Voltage Setting | Output Voltage Setting | Output Voltage Setting | Output Voltage Setting |
| 2 | Frequency Conversion:<br>Enable / Disable | Frequency Conversion:<br>Enable / Disable | Input Range (Vac) for<br>Normal Mode | Input Range (Vac) for<br>Normal Mode |
| 3 | Output Frequency Setting<br>(with CF Enable) | Output Frequency Setting<br>(with CF Enable) | ECO mode:<br>Enable / Disable | ECO mode:<br>Enable / Disable |
| 4 | ECO mode:<br>Enable / Disable | ECO mode:<br>Enable / Disable | Input Range (Vac) for:<br>ECO mode | Input Range (Vac) for:<br>ECO mode |
| 5 | Input Range (Vac) for:<br>ECO mode | Input Range (Vac) for:<br>ECO mode | BYPASS mode:<br>Enable / Disable | BYPASS mode:<br>Enable / Disable |
| 6 | BYPASS mode:<br>Enable / Disable | BYPASS mode:<br>Enable / Disable | Input Range (Vac) for:<br>BYPASS mode | Input Range (Vac) for:<br>BYPASS mode |
| 7 | Input Range (Vac) for:<br>BYPASS mode | Input Range (Vac) for:<br>BYPASS mode | N/A | Maximum runtime for:<br>General Outlets |
| 8 | Programmable Outlets:<br>Enable / Disable | Maximum runtime for:<br>General Outlets | N/A | Input Range (Hz) for:<br>BYPASS mode |
| 9 | Runtime setting for:<br>Programmable Outlets | N/A | N/A | AH value setting for<br>internal batteries |
| 10 | Maximum runtime for:<br>General Outlets | N/A | N/A | N-G Voltage Control:<br>Enable / Disable |

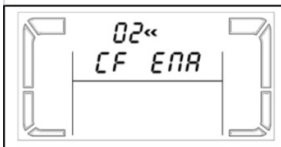
## MODEL: OPTIMA : 1K, 1.5K, 2K & 3K

Screens for 230V models. 120V models have their own screens showing values typical for 120V systems.

| | |
|---|---|
| | **01: Output Voltage Configuration**<br>Output voltage value can be selected from 4 available values:<br>* For 220V Models: 208V, 220V, 230'V or 240Vac<br>* For 120V Models: 110V, 115V, 120V or 127Vac |
| | **02: CF: Enable or Disable**<br>This function enables or disables Frequency Conversion function.<br>CF allows UPS to supply output with different frequency value than detected at its input.<br>CF ENA: CF function enable / CF DIS: CF function disable |
| | **03: CF: Frequency value in Hz**<br>Output frequency can be configured for battery mode: BAT 50: 50Hz or BAT 60: 60Hz<br>If CF function is enable output frequency can be set in normal mode:<br>CF 50: 50Hz or CF 60: 60Hz |
| | **04: ECO: Enable or Disable**<br>This function allows to enable or disable ECO mode.<br>ENA: ECO enable (ON)<br>DIS: ECO disable (OFF) |
| | **05: ECO: Input Range Configuration**<br>This function allows to set HIGH limit (HLS) and LOW limit (LLS) for ECO mode. Hi limit and Low limit define the acceptable voltage input range in ECO mode. If during ECO mode input voltage is out of acceptable input range UPS will change to normal ONLINE mode. |
| | **06: Bypass: Enable or Disable**<br>This function allows to enable or disable BYPASS mode. If Bypass mode is enable, UPS will enter in BYPASS when UPS is connected to AC input service without selecting ON push button.<br>ENA: Bypass enable / DIS: Bypass disable |
| | **07: By Pass: Input Range Configuration**<br>This function allows to set HIGH limit (HLS) and LOW limit (LLS) for BYPASS mode.<br>Hi limit and Low limit define the acceptable voltage input range in BYPASS mode.<br>If during BYPASS mode input voltage is out of acceptable range UPS will power-off. |
| | **08: Programmable Outlets: Enable or Disable**<br>This function allows to enable or disable programmable outlets. Programmable outlets are those that can be programmed to power-off after reaching configured time even battery level is OK.<br>ENA: to enable programmable function. / DIS: to disable programmable function. |
| | **09: Programmable Outlets: Timer setting**<br>0-999: To configure timer limit in minutes for powering off programmable outlets no matter batteries level is still OK. |
| | **10: Máx backup Time: Timer setting**<br>0-999: To configure maximum backup time (in minutes) for general AC outlets.<br>This function allows to power-off ALL outlets when reaching configured time even batteries charging level is above minimal. Factory setting is 999 minutes. |

## MODEL: OPTIMA (HB) : 1K-HB, 2K-HB & 3K-HB

Screens for 230V models. 120V models have their own screens showing values typical for 120V systems.

| | |
|---|---|
| | **01: Output Voltage Configuration**<br>Output voltage value can be selected from 4 available values:<br>* For 220V Models: 208V, 220V, 230'V or 240Vac<br>* For 120V Models: 110V, 115V, 120V or 127Vac |
|  | **02: CF: Enable or Disable**<br>This function enables or disables Frequency Conversion function.<br>CF allows UPS to supply output with different frequency value than detected at its input.<br>CF ENA: CF function enable / CF DIS: CF function disable |
| | **03: CF: Frequency value in Hz**<br>Output frequency can be configured for battery mode: BAT 50: 50Hz or BAT 60: 60Hz<br>If CF function is enable output frequency can be set in normal mode:<br>CF 50: 50Hz or CF 60: 60Hz |
| | **04: ECO: Enable or Disable**<br>This function allows to enable or disable ECO mode.<br>ENA: ECO enable (ON)<br>DIS: ECO disable (OFF) |
| | **05: ECO: Input Range Configuration**<br>This function allows to set HIGH limit (HLS) and LOW limit (LLS) for ECO mode. Hi limit and Low limit define the acceptable voltage input range in ECO mode. If during ECO mode input voltage is out of acceptable input range UPS will change to normal ONLINE mode. |
| | **06: Bypass: Enable or Disable**<br>This function allows to enable or disable BYPASS mode. If Bypass mode is enable, UPS will enter in BYPASS when UPS is connected to AC input service without selecting ON push button.<br>ENA: Bypass enable / DIS: Bypass disable |
| | **07: By Pass: Input Range Configuration**<br>This function allows to set HIGH limit (HLS) and LOW limit (LLS) for BYPASS mode.<br>Hi limit and Low limit define the acceptable voltage input range in BYPASS mode.<br>If during BYPASS mode input voltage is out of acceptable range UPS will power-off. |
| | **08: Máx backup Time: Timer setting**<br>0-999: To configure maximum backup time (in minutes) for general AC outlets.<br>This function allows to power-off ALL outlets when reaching configured time even batteries charging level is above minimal. Factory setting is 999 minutes. |

## MODEL: OPTIMA (F-CN) : 1KF-CN, 2KF-CN & 3KF-CN

Screens for 230V models. 120V models have their own screens showing values typical for 120V systems.

**01: Output Voltage Configuration**

Output voltage value can be selected from 4 available values:

* For 220V Models: 208V, 220V, 230'V or 240Vac
* For 120V Models: 110V, 115V, 120V or 127Vac

**02: Input Acceptable Voltage Range**

**Defines acceptable input to allow UPS to go to normal ONLINE mode.**

**HLS: High Limit:** * For 220V models: from 260V to 300V. For 120V models, from 130V to 150V.

**LLS: Low Limit:** * For 220V models, from 160V to 190V. For 120V models, from 80V to 95V)

**03: ECO: Enable or Disable**

This function allows to enable or disable ECO mode.

ENA: ECO enable (ON)

DIS: ECO disable (OFF)

**04: ECO: Input Range Configuration**

This function allows to set HIGH limit (HLS) and LOW limit (LLS) for ECO mode. Hi limit and Low limit define the acceptable voltage input range in ECO mode. If during ECO mode input voltage is out of acceptable input range UPS will change to normal ONLINE mode.

**05: Bypass: Enable or Disable**

This function allows to enable or disable BYPASS mode. If Bypass mode is enable, UPS will enter in BYPASS when UPS is connected to AC input service without selecting ON push button.

ENA: Bypass enable / DIS: Bypass disable

**06: By Pass: Input Range Configuration**

This function allows to set HIGH limit (HLS) and LOW limit (LLS) for BYPASS mode.

Hi limit and Low limit define the acceptable voltage input range in BYPASS mode.

If during BYPASS mode input voltage is out of acceptable range UPS will power-off.

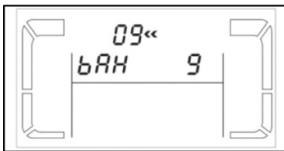
**07: Máx backup Time: Timer setting**

0-999: To configure maximum backup time (in minutes) for general AC outlets.

This function allows to power-off ALL outlets when reaching configured time even batteries charging level is above minimal. Factory setting is 999 minutes.

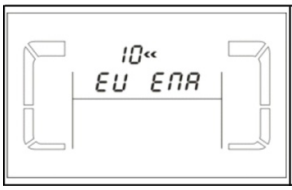
**08: Bypass frequency range setting**

This function allows to configure HIGH limit (HLS) and LOW limit (LLS) of input FREQUENCY range in BYPASS mode. If during BYPASS mode, input frequency is out of acceptable range, UPS will power-off.




**09: Battery Setting (AH)**

If original batteries are replaced by different AH value, user must use this menu to set the AH value of the new batteries installed.




**10: Control Setting for N-G Voltage**

This function allows UPS to control voltage between output NEUTRAL and GROUND.

ENA: Control Enable: Voltage between UPS output N-G similar than input.

DIS: Disable: Output NEUTRAL isolated from input NEUTRAL. Voltage in output N-G could rise.

## MODEL: OPTIMA (F) : 1KF, 2KF & 3KF

Screens for 230V models. 120V models have their own screens showing values typical for 120V systems.

**01: Output Voltage Configuration**

Output voltage value can be selected from 4 available values:

* For 220V Models: 208V, 220V, 230'V or 240Vac
* For 120V Models: 110V, 115V, 120V or 127Vac

**02: Input Acceptable Voltage Range**

**Defines acceptable input to allow UPS to go to normal ONLINE mode.**

**HLS: High Limit:** * For 220V models: from 260V to 300V. For 120V models, from 130V to 150V.

**LLS: Low Limit:** * For 220V models, from 160V to 190V. For 120V models, from 80V to 95V)

**03: ECO: Enable or Disable**

This function allows to enable or disable ECO mode.

ENA: ECO enable (ON)

DIS: ECO disable (OFF)

**04: ECO: Input Range Configuration**

This function allows to set HIGH limit (HLS) and LOW limit (LLS) for ECO mode. Hi limit and Low limit define the acceptable voltage input range in ECO mode. If during ECO mode input voltage is out of acceptable input range UPS will change to normal ONLINE mode.

**05: Bypass: Enable or Disable**

This function allows to enable or disable BYPASS mode. If Bypass mode is enable, UPS will enter in BYPASS when UPS is connected to AC input service without selecting ON push button.

ENA: Bypass enable / DIS: Bypass disable

**06: By Pass: Input Range Configuration**

This function allows to set HIGH limit (HLS) and LOW limit (LLS) for BYPASS mode.

Hi limit and Low limit define the acceptable voltage input range in BYPASS mode.

If during BYPASS mode input voltage is out of acceptable range UPS will power-off.

## 10. ERROR CODES

| FAILURE / ERROR | CODE | ICON |
|---|---|---|
| Bus failure | 01 | |
| Hi BUS Voltage | 02 | |
| Low BUS Voltage | 03 | |
| Bus Unbalanced | 04 | |
| Short-circuit in BUS | 05 | |
| Soft-start Inverter Failure | 11 | |
| Inverter: Hi Voltage | 12 | |
| Inverter: Low Voltage | 13 | |
| Inverter output short circuit | 14 | SHORT |
| Battery Very High Voltage | 27 | BATT FAULT |
| Battery Very Low Voltage | 28 | BATT FAULT |
| Over Temperature | 41 | |
| Overload: UPS power output capacity has been exceeded. | 43 | OVER LOAD |

## 11. ALARMS ON LCD

| ALARM Description | ICON on LCD | Beep Alarm |
|---|---|---|
| Low battery | LOW BAT | 1 / s |
| Overload: hi power consumption detected at UPS output. | OVERLOAD | 2 / s |
| Battery disconnected | | 1 / s |
| Batteries overcharged | | 1 / s |
| Input Cable failure | I/P | 1 / s |
| EPO enable | EP | 1 / s |
| FAN failure | FA | 1 / s |
| Over Temperature | tP | 1 / s |
| Battery charger problem | CH | 1 / s |
| Input out of range in bypass mode | BYPASS | 1 / s |
| Battery failure | BATT FAULT | 1 / s |
| Battery need to be replaced | BATT FAULT | 2 / s |
| Input frequency unstable for BYPASS mode | FU | 1 / s |
| EOPTIMAM memory error | EE | 1 / s |

### BEEP ALARM

| | |
|---|---|
| Battery Mode: | 1 “Beep” every 4 seconds |
| Battery Low: | 1 “Beep” per second |
| Output Overload: | 2 “Beeps” per second |
| UPS Failure: | Continuous Beep |
| By-Pass Mode: | 1 Beep every 10 seconds. |

## 12. TROUBLESHOOTING

| Problem Description | Probable Root Cause | Suggested Action |
|---|---|---|
| * LCD does not show input voltage value<br><br>* AC input failure alarm active<br>(1 beep / 4s) however AC input source is OK | Input power cord is not connected | Check input power cord connection. |
| | Input power cord is connected into UPS outlet. | Check input power cord connection. |
| UPS cannot be powered on even AC input is OK.<br>Beep alarm is active (1 beep/s) & LCD shows:<br>⚠ **EP** | EPO function is active. | Re-establish emergency power off switch and set UPS in normal mode. |
| UPS cannot be powered on even AC input is OK. | ON push button is not been selected properly | Push ON button during 2 seconds or longer |
| 1 beep / s alarm is active and LCD shows:<br>⚠ I/P | Input Line and Neutral are swapped | Rotate UPS plug at wall socket to allow correct line-neutral connection. This suggestion is only valid for Schuko power plug type. |
| 1 beep / s alarm is active and LCD shows:<br>⚠ | Internal or external batteries are not properly connected | Check battery connection. |
| * Code **27**<br>* Active: BATT. FAULT<br>* Continuous beep | Very high voltage at batteries or charger failure | Batteries and charger must be inspected by qualified personnel |
| * Code **28**<br>* Active: BATT. FAULT<br>* Continuous beep | Very low voltage at batteries or charger failure | Batteries and charger must be inspected by qualified personnel |
| * Intermittent: ⚠ + OVER LOAD<br>* 2 beeps per second. | UPS overloaded | Disconnect devices from UPS outlets until solving overload |
| * Intermittent: ⚠ + OVER LOAD<br>* 2 beeps per second.<br>* By-Pass activated | UPS overloaded. UPS has changed to BYPASS mode to avoid internal damage. | Disconnect devices from UPS outlets until solving overload |
| | After repetitive small overloads, UPS has changed to BYPASS mode. | Disconnect devices from UPS outlets until solving overload. Then power off UPS and re-star again. |
| * Code **43**<br>* Active: OVER LOAD<br>* Continuous beep | UPS has been automatically powered off because overload. | Disconnect devices from UPS outlets until solving overload. Then power ON. |
| * Active: SHORT on LCD.<br>* Continuous beep | UPS has been automatically powered off because short circuit detected at output. | Check short circuit problem in devices connected to UPS |
| * Any of following codes indicated on LCD:<br>1, 2, 3, 4, 11, 12, 13 o 41<br>* Continuous beep | Internal Ups failure detected. UPS working in any of following modes:<br>1. UPS output powered in BYPASS mode<br>2. UPS outlets powered off | Call service support |
| Very short backup time | Batteries can be discharged because recent use.. | Let UPS recharge batteries during 6 hours before check backup time again. |
| | Battery can be degraded because long lifetime. | Batteries must be replaced by new batteries. |

## 13. SOFTWARE

Our control software offers huge capabilities to monitor your UPS and configure key shutdown parameters. Also event and data log are available in software options.
Main software features are:

- Friendly human interface to UPS.
- Controlled files saving and OS shutdown when blackout is detected.
- Configurable scheduled shutdown and Auto-tests

Some UPS models include software CD inside the box. For others software downloading is available from our website.
Download always software user manual and follow it carefully during software installation.

## 14. BATTERIES: MAINTENANCE AND CARE

When battery backup time is noticeable shorter it is time to replace batteries. To get longer lifetime we recommend applying a deep discharge every 3 months. Operation temperature should be below 25ºC.

### IMPORTANT: RECHARGING PLAN DURING LONG STORAGE

When UPS is storage periodic recharge must be performed as indicated in below table.
Long storage without recharging will damage batteries. This kind of problem is not covered by original product warranty.

| Storage Temperature | Recharge Frequency | Recharge Time |
|---|---|---|
| -25°C to +30°C | 3 months | 6 hours |
| +30°C to +45°C | 2 months | 6 hours |

## 15. WARRANTY AND SUPPORT

**Support:** If a failure or problem is detected please check troubleshooting section in user manual. If problem cannot be solved please contact authorized service center or authorized dealer.

**Batteries:** Rechargeable batteries can be charged and discharged hundreds of times. However they will eventually wear out. This is not a defect or failure so that batteries wear out is not covered by this warranty.
Battery lifetime will depend of operative conditions like working temperature, type and frequency of discharging cycles. Higher the temperature shorter will be the lifetime. Frequent and deep discharging cycles also will short lifetime. For critical applications batteries should be revised and replaced periodically. Long storage (longer than 6 months) without required recharging will wear out batteries. This situation is not covered by this limited warranty since this is not considered as a defect. Check recharging instructions on user manual.

**Conditions Limited Warranty "X-UPS"**

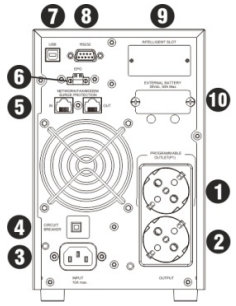
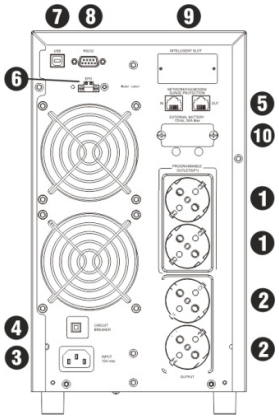
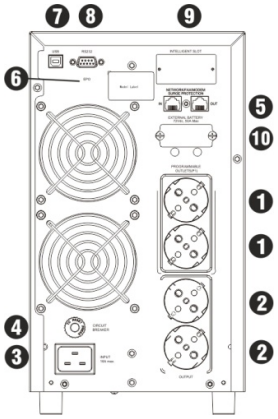
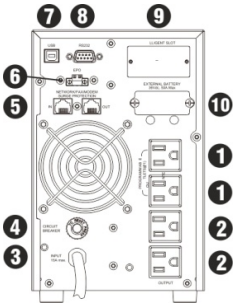
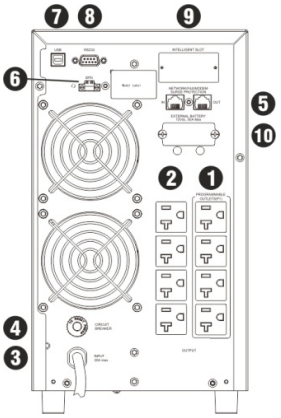
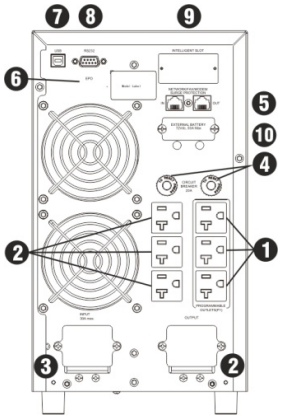
1.- Subject to the conditions of this limited warranty, this product is warranted to be free from defects in materials and workmanship at the time of XMART supplies the product.
Standard warranty times could vary depending on country/region or can be extended by purchasing warranty options. Please check warranty plans and extensions with your local distributor or revise in our web www.xmart-ups.com.
2.- If during the warranty period, this product fails to operate under normal use and service, due to defects in materials or workmanship, authorized distributor or service center will, at their option, either repair or replace the product in accordance with terms and conditions stipulated herein. Transportation expenses are not covered by this limited warranty.
3.- Warranty is valid only if the original invoice issued by XMART, specifying date of purchase, serial number and name of the dealer, is presented with the product to be revised. XMART and authorized partners reserve the right to refuse warranty service if any of this information has been removed, changed or missing in original invoice document.
4.- If product is repaired or replaced, repaired or replaced product will be warranted for the remaining time of the original warranty or for 90 days on repaired part from date of repair, whichever is longer.
5.- XMART or their distribution/service partners reserve the right to charge handling fee if returned product is free of failure or it is out of warranty because any of the reasons described in this warranty.
6.- If product is out of warranty a reparation proposal will be sent to the user for his approval. If proposal is not accepted, service center will keep product available for the user during 60 continuous days. After this period product would be disposed and user will not be able to rise any claim.
7.- Rechargeable batteries, like included in this product, will definitively wear out even under normal operation. This is not a defect or failure so it is not covered by this warranty.
8.- This warranty does not cover batteries wear out caused by improper or long storage (over 6 months without required recharging indicated in product manual). Even performing recharging procedure this product cannot be storage longer than 18 months. Problems on batteries caused by this kind of long storage are not covered by this warranty.
9.- This warranty does not cover product failures caused by installations, modifications or repair performed by non authorized person. If product is open by not authorized technician warranty will be considered void. This warranty does not cover failure caused by inadequate installation or maintenance, misuse, accidents, fire or floods.
10.- This product can include protection devices like input fuse or input breaker. Activation of this kind of devices is not a failure it is caused by an improper product installation. Input fuse or breaker reset or replacement is not covered by this warranty.
11.- This warranty does not cover damages produced during transportation from user to technical service caused by improper packing of the product by user.
12.- Warranty terms and conditions cannot be modified or extended by third parties without written approval of XMART.

**Limited Warranty "X-UPS"**

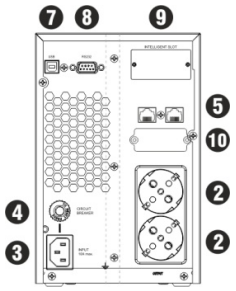
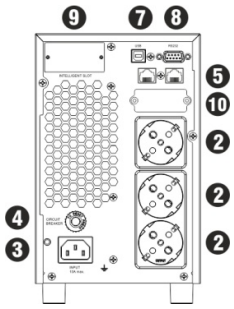
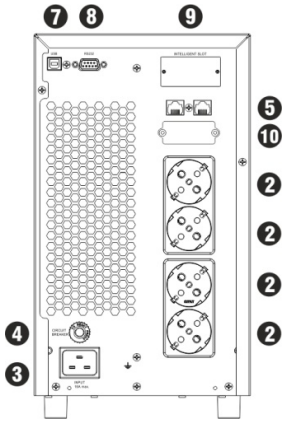
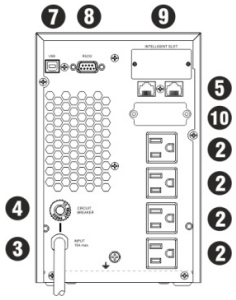
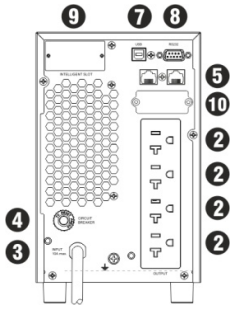
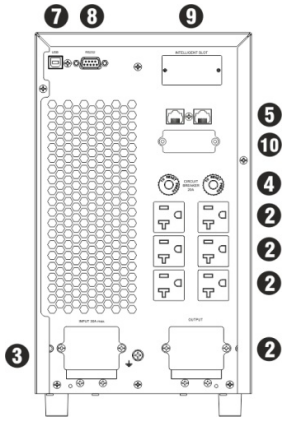
- XMART does not warrant that the operation of this product will be uninterrupted or error-free during its lifetime. If product fails to work, the maximum liability of XMART under this limited warranty is expressly limited to the lesser of the price you have paid for the product or the cost of repairing or replacement of any hardware components that malfunction in conditions of normal use.
- In no event will XMART be liable for any damages caused by the product or the failure of the product to perform, including any lost profits or savings or special, incidental, or consequential damages. XMART is not liable for any claim made by a third party to XMART or to final user.
- XMART is not responsible for damage that occurs as a result of your failure to follow the instructions intended for this hardware product.
- XMART is not responsible for damage that occurs as a result of your failure to follow the instructions intended for this hardware product.

## 16. REAR PANEL

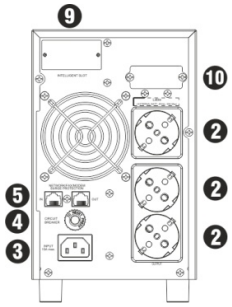
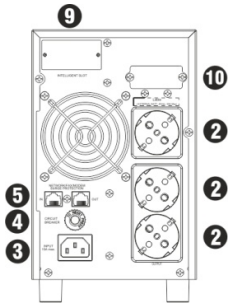
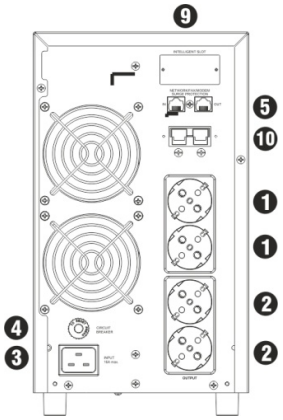
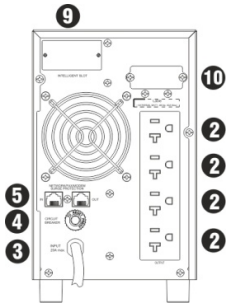
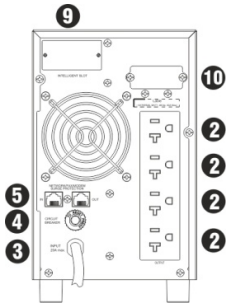
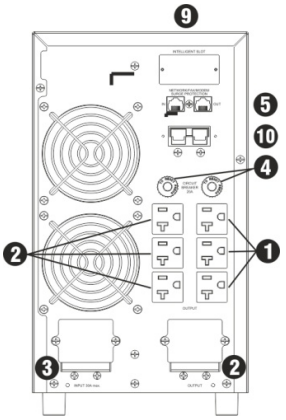
1.- Programable Outltes
2.- Standar UPS Outlets
3.- AC Input
4.- Input Breaker
5.- RJ45 Surge Protected Sockets
6.- Emergency Power Off Connector
7.- USB
8.- RS-232
9.- SNMP Smart Port
10.- External Battery Connector (EXBATT). Optional
11.- AC Output Terminal Block
12.- Output Breaker
13.- AC Input Terminal Block

| OPTIMA | 1K & 1.5K | 2K | 3K |
|---|---|---|---|
| OPTIMA SCHUKO |  |  |  |
| OPTIMA NEMA |  |  |  |

1.- Programable Outltes
2.- Standar UPS Outlets
3.- AC Input
4.- Input Breaker
5.- RJ45 Surge Protected Sockets
6.- Emergency Power Off Connector
7.- USB
8.- RS-232
9.- SNMP Smart Port
10.- External Battery Connector (EXBATT). Optional
11.- AC Output Terminal Block
12.- Output Breaker
13.- AC Input Terminal Block

| OPTIMA (HB) | 1K | 2K | 3K |
|---|---|---|---|
| **OPTIMA (HB)**<br>**SCHUKO** |  |  |  |
| **OPTIMA (HB)**<br>**NEMA** |  |  |  |

1.- Programable Outltes
2.- Standar UPS Outlets
3.- AC Input
4.- Input Breaker
5.- RJ45 Surge Protected Sockets
6.- Emergency Power Off Connector
7.- USB
8.- RS-232
9.- SNMP Smart Port
10.- External Battery Connector (EXBATT). Optional
11.- AC Output Terminal Block
12.- Output Breaker
13.- AC Input Terminal Block

| OPTIMA (F) & (F-CN) | 1K | 2K | 3K |
|---|---|---|---|
| **OPTIMA (F)**<br>**OPTIMA (F-CN)**<br><br>**SCHUKO** |  |  |  |
| **OPTIMA (F)**<br>**OPTIMA (F-CN)**<br><br>**NEMA** |  |  |  |

## 17. SPECIFICATIONS 1K/1.5K/2K/3K (1/2)

### OPTIMA 1K / 1.5K / 2K / 3K

| ONLINE UPS 1K-3K | 1K | 1.5K | 2K | 3K |
|---|---|---|---|---|
| Capacity / Capacidad (VA) | 1000VA | 1500VA | 2000VA | 3000VA |
| Capacity / Capacidad (W) | 800W | 1200W | 1600W | 2400W |
| **INPUT / ENTRADA** | | | | |
| Range / Rango - Vac (Models 120V): | Model 120V: 80Vac-150Vac (@ 100% load)<br>Model 120V: 50Vac-150Vac (@ 50% load) | | | |
| Range / Rango - Vac (Models 220V): | Model 220V: 160Vac-300Vac (@ 100% load)<br>Model 220V: 110Vac-300Vac (@ 50% load) | | | |
| Freq. Range / Rango Frecuencia | 40 Hz - 70Hz | | | |
| Phase / Fases | Single phase with ground / 1 fase + Tierra | | | |
| Power Factor / Factor de Potencia | > 0.99 @ 100% load | | | |
| Input THDi / THDi de Entrada | < 7% @ 100% load | | | |
| Slew Rate / Seguimiento de F. | 1 Hz / s | | | |
| Surge Prot. / Protección Picos (120V) | >930 Joules | >930 Joules | >385 Joules | >385 Joules |
| Surge Prot. / Protección Picos (220V) | >1630 Joules | >1630 Joules | >1630 Joules | >1630 Joules |
| **OUTPUT / SALIDA** | | | | |
| Voltage Output / Voltaje de Salida AC | (*N1) Model 120V: 110/115/120/127Vac - Model 220V: 208/220/230/240Vac | | | |
| Output Regulation / Rango de Salida | +/-1% | | | |
| Frequency / Frecuencia (Batt. Mode) | (*N3) 50 Hz +/- 0.25 Hz - 60Hz +/- 0.3 Hz | | | |
| Current Crest Ratio / Factor de Cresta | 3:1 @ 100% load | | | |
| Harmonic Distortion /<br>Dist. Armónica (THDv) | < 2% @ Linear Load / Carga Lineal<br><4% @ No Linear Load / Carga no Lineal | | | |
| AC to Inverter / Tiempo AC a Inversor | 0 ms | | | |
| Waveform / Forma de Onda | Pure Sinewave / Sinusoidal Pura | | | |
| Freq. Conversion / Conversión Frec. | Y | Y | Y | Y |
| EPO /Apagado Emergencia | Y | Y | Y | Y |
| Progammable Outputs / Salidas Prog. | Y | Y | Y | Y |
| **PEAK EFFICIENCY / EFICIENCIA MAX.** | | | | |
| Eco Mode | > 93% | > 93% | > 93% | > 93% |
| AC Mode / Modo AC | > 87% | > 87% | > 90% | > 90% |
| Battery Mode / Modo Batería | > 83% | > 83% | > 87% | > 87% |
| **OVERLOAD/ SOBRECARGA** | | | | |
| AC Mode / Modo Normal | 100%~110%: (warning-alarma) / 110%~130%: 1min: bypass / >130% : 1s: bypass | | | |
| Battery Mode / Modo Batería | 100%~110%: (warning-alarma) / 110%~130%: 30s: shutdown / >130% : 1s: shutdown | | | |
| Shortcircuit / Cortocircuitos | Full Protection for all outlets / Protección en todas las salidas | | | |
| **BATTERIES / BATERIAS** | | | | |
| Type / Tipo | Sealed Lead Acid VRLA-AGM / Sellada de Libre Mantenimiento VRLA-AGM | | | |
| Cap. & Qty | 12V/7AH x 3 | 12V/9AH x 3 | 12V/7AH x 6 | 12V/9AH x 6 |
| Recharge Time / Recarga | 4 Hours for 90% capacity / 4 Horas para recuperar el 90% de carga | | | |
| Charging Voltage / Voltaje de Carga | 41Vdc | 41Vdc | 82Vdc | 82Vdc |
| Charging Amps / Corriente de Carga | 1.0 A (Max.) | | | |
| **EXT. BATT CABINETS (Optional) - BATERIAS EXTERNAS (opcionales)** | | | | |
| Standard EXT-BATT pack | x | x | 12V-9Ah x 12 | 12V-9Ah x 12 |
| **INDICATORS / INDICADORES** | | | | |
| LCD | UPS status, Load level, Battery, Input/Output voltage, Discharge timer, and Fault conditions<br>Estado del UPS, Consumo, Baterías, Voltaje Entrada/Salida, Autonomía, Diagnostico Fallas | | | |
| **ALARM / ALARMAS** | | | | |
| Alarm Beep / Alarma Sonora: | Battery Mode, Low batt., Overload, UPS Failure / Modo Batería, Baja batería, Sobrecargas, Falla | | | |

## SPECIFICATIONS 1K/1.5K/2K/3K (2/2)

## OPTIMA 1K / 1.5K / 2K / 3K

| ONLINE UPS 1K-3K | 1K | 1.5K | 2K | 3K |
|---|---|---|---|---|
| **PRODUCT FEATURES / CARACTERISTICAS DEL PRODUCTO** | | | | |
| DxWxH / Prof.*Ancho*Altura (mm) | 397x145x220 | 397x145x220 | 421x190x318 | 421x190x318 |
| Net Weight / Peso Neto (kgs) | 13 | 14 | 26 | 28 |
| **UPS MODEL: 230Vac (EUROPE)** | | | | |
| Standard Outlets / Salidas Estándar | SCHUKO x 1 | SCHUKO x 1 | SCHUKO x 2 | SCHUKO x 2 |
| Prog. Outlets / Salidas prog. (*N2) | SCHUKO x 1 | SCHUKO x 1 | SCHUKO x 2 | SCHUKO x 2 |
| **UPS MODEL: 120Vac (AMERICA)** | | | | |
| Standard Outlets / Salidas Estándar | NEMA-15 x 2 | NEMA-15 x 2 | NEMA-20 x 4 | NEMA x 3 +TB |
| Prog. Outlets / Salidas prog. (*N2) | NEMA-15 x 2 | NEMA-15 x 2 | NEMA-20 x 4 | NEMA-20 x 3 |
| **External Battery Cabinet (Tower)** | | | | |
| DxWxH / Prof.*Ancho*Altura | NA | NA | 421x190x318 | 421x190x318 |
| Net Weight / Peso Neto (kgs) | NA | NA | 29 | 39 |
| **PACKING / EMPAQUE** | | | | |
| **UPS "Tower" Type** | | | | |
| Unit CARTON: DxWxH (mm) | 472x230x340 | 472x230x340 | 560x320x470 | 560x320x470 |
| Unit Gross Weight / Peso Bruto | 14 Kg | 15 Kg | 29 Kg | 30 Kg |
| Half Pallet / Medio Pallet | 30pcs | 30pcs | 12pcs | 12pcs |
| Full Pallet / Pallet Completo | 50pcs | 50pcs | 24pcs | 24pcs |
| **External Battery Cabinet** | | | | |
| Unit CARTON: DxWxH (mm) | NA | NA | 560x320x470 | 560x320x470 |
| Unit Gross Weight / Peso Bruto | NA | NA | 31 | 41 |
| Half Pallet / Medio Pallet | NA | NA | 12pcs | 12pcs |
| Full Pallet / Pallet Completo | NA | NA | 24pcs | 24pcs |
| **OPERATIONAL CONDITIONS / CONDICIONES DE OPERACIÓN** | | | | |
| Rel. Humidity / Humedad Relativa | < 95 % RH (non-condensing / no condensante) | | | |
| Temperature / Temperatura | 0 - 40 ºC | | | |
| Noise Level / Ruido Producido | < 45dBA @ 1 m | | | |
| **COMMUNICATION / COMUNICACION** | | | | |
| Smart RS-232 & USB | Windows family; Linux; Unix; Mac OS | | | |
| Intelligent SNMP Port: | LAN Card SNMP type - optional / Comunicación con LAN mediante SNMP opcional<br>AS400 Interface (optional comm. Card) / Interfaz con AS400 (tarjeta opcional) | | | |

Technical specifications can be modified to comply with special requirements / Las especificaciones pueden bajo requerimiento adaptarse a proyectos especiales
Technical specifications may change without further notice / Por motivos comerciales o técnicos las especificaciones pueden cambiar sin previo aviso.

(*N1): Output voltage is selectable by LCD / El Voltaje de salida es configurable entre 4 alternativas seleccionables en el LCD

(*N2): Backup time for programable outlets is configurable (in minutes) by LCD to offer longer time to critical loads connected to normal outlets

La autonomía de las salidas programables es configurable (en min.) en el LCD para dejar mayor autonomía para las salidas normales

(*N3): Converter Mode Function allows to set output frequency at constant value: 50Hz or 60Hz when input Frequency is within 40 - 70 Hz

El modo de Conversión de Frecuencia permite fijar la salida a 50 o 60Hz siempre que la frecuencia de entrada se mantenga entre 40 y 70 Hz.

** Derate capacity to 60% of total capacity when Frequency converter mode is activated.
When the output voltage is adjusted to 208VAC (in 220Vac models) output capacity derates to 80%.

** La capacidad en VA/ Watts se degrada y baja hasta el 60% en modo "Convertidor de Frecuiencia".
Cuando el voltaje de salida se ajusta a 208Vac (en los modelos de 220Vac) se pierde un 20% de capacidad de salida.

** Maximum working altitud is 4.000m. Over 1.000m output derates 1% every 100m.
Altura máxima de operación es 4.000m. Sobre los 1.000m la potencia de salida disminuye un 1% cada 100m.

## ESPECIFICACIONES (1K-HB / 2K-HB / 3K-HB) (1/2)

### OPTIMA (HB)

| ONLINE UPS (1/2) | 1K-HB | 2K-HB | 3K-HB |
|---|---|---|---|
| Capacity / Capacidad (VA) | 1000VA | 2000VA | 3000VA |
| Capacity / Capacidad (W) | 800W | 1600W | 2400W |
| **INPUT / ENTRADA** | | | |
| Range / Rango - Vac (Models 120V): | Model 120V: 85Vac -145Vac (load @ 100%)<br>Model 120V: 55Vac -150Vac (load < 50%) | | |
| Range / Rango - Vac (Models 220V): | Model 220V: 160Vac-290Vac (load @ 100%)<br>Model 220V: 110Vac-300Vac (load @ 50%) | | |
| Freq. Range / Rango Frecuencia | 40 Hz - 70Hz | | |
| Phase / Fases | Single phase with ground / 1 fase + Tierra | | |
| Power Factor / Factor de Potencia | > 0.99 @ 100% load | | |
| Input THDi / THDi de Entrada | < 7% @ 100% load | | |
| Slew Rate / Seguimiento de F. | 1 Hz / s | | |
| Surge Immunity Level | > 7KV (EN61000-4-5) | | |
| Surge Protection / Protección contra picos | Models 120V: > 385 Joules / Models 220V: > 595 Joules (10/1000 us) | | |
| **OUTPUT / SALIDA** | | | |
| Voltage Output / Voltaje de Salida AC | (*N1) Model 120V: 110/115/120/127Vac - Model 220V: 208/220/230/240Vac | | |
| Output Regulation / Rango de Salida | +/-1% (in Batt. mode) | | |
| Frequency / Frecuencia (Batt. Mode) | (*N3) 50 Hz +/- 0.25 Hz - 60Hz +/- 0.3 Hz | | |
| Current Crest Ratio / Factor de Cresta | 3:1 @ 100% load | | |
| Harmonic Distortion /<br>Dist. Armónica (THDv) | < 3% @ Linear Load / Carga Lineal<br><6% @ No Linear Load / Carga no Lineal | | |
| AC to Inverter / Tiempo AC a Inversor | 0 ms | | |
| Waveform / Forma de Onda | Pure Sinewave / Sinusoidal Pura | | |
| Freq. Conversion / Conversión Frec. | N | N | N |
| EPO /Apagado Emergencia | N | N | N |
| Progammable Outputs / Salidas Prog. | N | N | N |
| **PEAK EFFICIENCY / EFICIENCIA MAX.** | | | |
| Eco Mode | > 93% | > 93% | > 93% |
| AC Mode / Modo AC | > 89% | > 90% | > 90% |
| Battery Mode / Modo Batería | > 86% | > 88% | > 88% |
| **OVERLOAD/ SOBRECARGA** | | | |
| AC Mode / Modo Normal | 105%~110%: 10 min to Bypass / 110%~130%: 1min to Bypass / >130% : 3s: bypass | | |
| Battery Mode / Modo Batería | 105%~110%: 10 min: shutdown / 110%~130%: 1 min: shutdown / >130% : 3s: shutdown | | |
| Output Shortcircuit / Cortocircuito en Salida | Full Protection for all outlets / Protección en todas las salidas | | |
| **BATTERIES / BATERIAS** | | | |
| Type / Tipo | Sealed Lead Acid VRLA-AGM / Sellada de Libre Mantenimiento VRLA-AGM | | |
| Cap. & Qty | 12V/9AH x 2 | 12V/9AH x 4 | 12V/9AH x 6 |
| Recharge Time / Recarga | 4 Hours for 90% capacity / 4 Horas para recuperar el 90% de carga | | |
| Charging Voltage / Voltaje de Carga | 27.4Vdc | 54.7Vdc | 82.1Vdc |
| Charging Amps / Corriente de Carga | 1.0 A (Max.) | | |
| **EXT. BATT CABINETS (Optional) - BATERIAS EXTERNAS (opcionales)** | | | |
| Standard EXT-BATT pack | x | 12V-9Ah x 8 | 12V-9Ah x 12 |
| **INDICATORS / INDICADORES** | | | |
| LCD | UPS status, Load level, Battery, Input/Output voltage, Discharge timer, and Fault conditions<br>Estado del UPS, Consumo, Baterías, Voltaje Entrada/Salida, Autonomía, Diagnostico Fallas | | |
| **ALARM / ALARMAS** | | | |
| Alarm Beep / Alarma Sonora: | Battery Mode, Low batt., Overload, UPS Failure / Modo Batería, Baja batería, Sobrecargas, Falla | | |

## ESPECIFICACIONES (1K-HB / 2K-HB / 3K-HB) (2/2)

## OPTIMA (HB)

| ONLINE UPS (2/2) | 1K-HB | 2K-HB | 3K-HB |
|---|---|---|---|
| **PRODUCT FEATURES / CARACTERISTICAS DEL PRODUCTO** | | | |
| DxWxH / Prof.*Ancho*Altura (mm) | 282x145x220 | 397x145x220 | 421x190x318 |
| Net Weight / Peso Neto (kgs) | 12 | 17 | 28 |
| **UPS MODEL: 230Vac (EUROPE)** | | | |
| Standard Outlets / Salidas Estándar | SCHUKO x 2 | SCHUKO x 3 | SCHUKO x 4 |
| Prog. Outlets / Salidas prog. (*N2) | NA | NA | NA |
| **UPS MODEL: 120Vac (AMERICA)** | | | |
| Standard Outlets / Salidas Estándar | NEMA-20 x 4 | NEMA-20 x 4 | NEMA x 6 +TB |
| Prog. Outlets / Salidas prog. (*N2) | NA | NA | NA |
| **External Battery Cabinet (Tower)** | | | |
| DxWxH / Prof.*Ancho*Altura | NA | 421x190x318 | 421x190x318 |
| Net Weight / Peso Neto (kgs) | NA | 29 | 39 |
| **PACKING / EMPAQUE** | | | |
| **UPS "Tower" Type** | | | |
| Unit CARTON: DxWxH (mm) | 360x230x340 | 472x230x340 | 560x320x470 |
| Unit Gross Weight / Peso Bruto (Kg) | 10 | 17 | 28 |
| Half Pallet / Medio Pallet | 36pcs | 30pcs | 12pcs |
| Full Pallet / Pallet Completo | 72pcs | 50pcs | 24pcs |
| **External Battery Cabinet** | | | |
| Unit CARTON: DxWxH (mm) | NA | 560x320x470 | 560x320x470 |
| Unit Gross Weight / Peso Bruto (Kg) | NA | 31 | 41 |
| Half Pallet / Medio Pallet | NA | 12pcs | 12pcs |
| Full Pallet / Pallet Completo | NA | 24pcs | 24pcs |
| **OPERATIONAL CONDITIONS / CONDICIONES DE OPERACIÓN** | | | |
| Rel. Humidity / Humedad Relativa | < 95 % RH (non-condensing / no condensante) | | |
| Temperature / Temperatura | 0 - 40 ºC | | |
| Noise Level / Ruido Producido | < 45dBA @ 1 m | | |
| **COMMUNICATION / COMUNICACION** | | | |
| Smart RS-232 & USB | Windows family; Linux; Unix; Mac OS | | |
| Intelligent SNMP Port: | LAN Card SNMP type - optional / Comunicación con LAN mediante SNMP opcional<br>AS400 Interface (optional comm. Card) / Interfaz con AS400 (tarjeta opcional) | | |

Technical specifications can be modified to comply with special requirements / Las especificaciones pueden bajo requerimiento adaptarse a proyectos especiales
Technical specifications may change without further notice / Por motivos comerciales o técnicos las especificaciones pueden cambiar sin previo aviso.
(*N1): Output voltage is selectable by LCD / El Voltaje de salida es configurable entre 4 alternativas seleccionables en el LCD
(*N2): Backup time for programable outlets is configurable (in minutes) by LCD to offer longer time to critical loads connected to normal outlets
La autonomía de las salidas programables es configurable (en min.) en el LCD para dejar mayor autonomía para las salidas normales
(*N3): Converter Mode Function allows to set output frequency at constant value: 50Hz or 60Hz when input Frequency is within 40 - 70 Hz
El modo de Conversión de Frecuencia permite fijar la salida a 50 o 60Hz siempre que la frecuencia de entrada se mantenga entre 40 y 70 Hz.
** Derate capacity to 80% of total capacity when Frequency converter mode is activated.
When the output voltage is adjusted to 208VAC (in 220Vac models) output capacity derates to 80%.
** La capacidad en VA/ Watts se degrada y baja hasta el 80% en modo "Convertidor de Frecuiencia".
Cuando el voltaje de salida se ajusta a 208Vac (en los modelos de 220Vac) se pierde un 20% de capacidad de salida.
** Maximum working altitud is 4.000m. Over 1.000m output derates 1% every 100m.
Altura máxima de operación es 4.000m. Sobre los 1.000m la potencia de salida disminuye un 1% cada 100m.
Max. Runtime is limited to 5 min when load is above 80%. Below 80%, runtime depends on batteries capacity only.
El tiempo de autonomía máx. es limitado a 5min. cuando la carga supera el 80%. Debajo del 80% la autonomía depende solo de la capacidad de las baterías.

## SPECIFICATIONS (1KF / 2KF / 3KF) & (1KF-CN / 2KF-CN / 3KF-CN) (1/2)

### OPTIMA (F) & (F-CN)

| ONLINE UPS (1/2) | 1KF & 1KF-CN | 2KF & 2KF-CN | 3KF & 3KF-CN |
|---|---|---|---|
| Capacity / Capacidad (VA) | 1000VA | 2000VA | 3000VA |
| Capacity / Capacidad (W) | 800W | 1600W | 2400W |
| **INPUT / ENTRADA** | | | |
| Range / Rango - Vac (Models 120V): | Model 120V: 80Vac-150Vac (@ 100% load)<br>Model 120V: 50Vac-150Vac (@ 50% load) | | |
| Range / Rango - Vac (Models 220V): | Model 220V: 160Vac-300Vac (@ 100% load)<br>Model 220V: 110Vac-300Vac (@ 50% load) | | |
| Freq. Range / Rango Frecuencia | 40 Hz - 70Hz | | |
| Phase / Fases | Single phase with ground / 1 fase + Tierra | | |
| Power Factor / Factor de Potencia | > 0.99 @ 100% load | | |
| Input THDi / THDi de Entrada | < 7% @ 100% load | | |
| Slew Rate / Seguimiento de F. | 1 Hz / s | | |
| Surge Immunity Level | > 7KV (EN61000-4-5) | | |
| **OUTPUT / SALIDA** | | | |
| Voltage Output / Voltaje de Salida AC | (*N1) Model 120V: 110/115/120/127Vac - Model 220V: 208/220/230/240Vac | | |
| Output Regulation / Rango de Salida | +/-1% | | |
| Frequency / Frecuencia (Batt. Mode) | (*N3) 50 Hz +/- 0.25 Hz - 60Hz +/- 0.3 Hz | | |
| Current Crest Ratio / Factor de Cresta | 3:1 @ 100% load | | |
| Harmonic Distortion /<br>Dist. Armónica (THDv) | < 3% @ Linear Load / Carga Lineal<br><6% @ No Linear Load / Carga no Lineal | | |
| AC to Inverter / Tiempo AC a Inversor | 0 ms | | |
| Waveform / Forma de Onda | Pure Sinewave / Sinusoidal Pura | | |
| Freq. Conversion / Conversión Frec. | N | N | N |
| EPO /Apagado Emergencia | N | N | N |
| Progammable Outputs / Salidas Prog. | N | N | N |
| **PEAK EFFICIENCY / EFICIENCIA MAX.** | | | |
| Eco Mode | > 93% | > 93% | > 93% |
| AC Mode / Modo AC | > 89% | > 90% | > 89% |
| Battery Mode / Modo Batería | > 86% | > 89% | > 88% |
| **OVERLOAD/ SOBRECARGA** | | | |
| AC Mode / Modo Normal | 100%~110%: (warning-alarma) / 110%~130%: 1min: bypass / >130% : 1s: bypass | | |
| Output Shortcircuit / Cortocircuito en Salida | Full Protection for all outlets / Protección en todas las salidas | | |
| Battery Mode / Modo Batería | 100%~110%: (warning-alarma) / 110%~130%: 30s: shutdown / >130% : 1s: shutdown | | |
| **BATTERIES / BATERIAS** | | | |
| Type / Tipo | Sealed Lead Acid VRLA-AGM / Sellada de Libre Mantenimiento VRLA-AGM | | |
| Cap. & Qty | 12V/9AH x 2 | 12V/9AH x 4 | 12V/9AH x 6 |
| Recharge Time / Recarga | 4 Hours for 90% capacity / 4 Horas para recuperar el 90% de carga | | |
| Charging Voltage / Voltaje de Carga | 27.4Vdc | 54.7Vdc | 82.1Vdc |
| Charging Amps / Corriente de Carga | 1.0 A (Max.) | | |
| **EXT. BATT CABINETS (Optional) - BATERIAS EXTERNAS (opcionales)** | | | |
| Standard EXT-BATT pack | x | 12V-9Ah x 8 | 12V-9Ah x 12 |
| **INDICATORS / INDICADORES** | | | |
| LCD | UPS status, Load level, Battery, Input/Output voltage, Discharge timer, and Fault conditions<br>Estado del UPS, Consumo, Baterías, Voltaje Entrada/Salida, Autonomía, Diagnostico Fallas | | |
| **ALARM / ALARMAS** | | | |
| Alarm Beep / Alarma Sonora: | Battery Mode, Low batt., Overload, UPS Failure / Modo Batería, Baja batería, Sobrecargas, Falla | | |

## SPECIFICATIONS (1KF / 2KF / 3KF) & (1KF-CN / 2KF-CN / 3KF-CN) (2/2)

## OPTIMA (F) & (F-CN)

| ONLINE UPS (2/2) | 1KF & 1KF-CN | 2KF & 2KF-CN | 3KF & 3KF-CN |
|---|---|---|---|
| **PRODUCT FEATURES / CARACTERISTICAS DEL PRODUCTO** | | | |
| DxWxH / Prof.*Ancho*Altura (mm) | 397x145x220 | 397x145x220 | 421x190x318 |
| Net Weight / Peso Neto (kgs) | 12 | 17 | 28 |
| **UPS MODEL: 230Vac (EUROPE)** | | | |
| Standard Outlets / Salidas Estándar | SCHUKO x 3 | SCHUKO x 3 | SCHUKO x 4 |
| Prog. Outlets / Salidas prog. (*N2) | NA | NA | NA |
| **UPS MODEL: 120Vac (AMERICA)** | | | |
| Standard Outlets / Salidas Estándar | NEMA-20 x 4 | NEMA-20 x 4 | NEMA x 6 +TB |
| Prog. Outlets / Salidas prog. (*N2) | NA | NA | NA |
| **External Battery Cabinet (Tower)** | | | |
| DxWxH / Prof.*Ancho*Altura | NA | 421x190x318 | 421x190x318 |
| Net Weight / Peso Neto (kgs) | NA | 29 | 39 |
| **PACKING / EMPAQUE** | | | |
| **UPS "Tower" Type** | | | |
| Unit CARTON: DxWxH (mm) | 472x230x340 | 472x230x340 | 560x320x470 |
| Unit Gross Weight / Peso Bruto (Kg) | 13 | 19 | 30 |
| Half Pallet / Medio Pallet | 30pcs | 30pcs | 12pcs |
| Full Pallet / Pallet Completo | 50pcs | 50pcs | 24pcs |
| **External Battery Cabinet** | | | |
| Unit CARTON: DxWxH (mm) | NA | 560x320x470 | 560x320x470 |
| Unit Gross Weight / Peso Bruto (Kg) | NA | 31 | 41 |
| Half Pallet / Medio Pallet | NA | 12pcs | 12pcs |
| Full Pallet / Pallet Completo | NA | 24pcs | 24pcs |
| **OPERATIONAL CONDITIONS / CONDICIONES DE OPERACIÓN** | | | |
| Rel. Humidity / Humedad Relativa | < 95 % RH (non-condensing / no condensante) | | |
| Temperature / Temperatura | 0 - 40 ºC | | |
| Noise Level / Ruido Producido | < 45dBA @ 1 m | | |
| **COMMUNICATION / COMUNICACION** | | | |
| Smart RS-232 & USB | Windows family; Linux; Unix; Mac OS | | |
| Intelligent SNMP Port: | LAN Card SNMP type - optional / Comunicación con LAN mediante SNMP opcional<br>AS400 Interface (optional comm. Card) / Interfaz con AS400 (tarjeta opcional) | | |

Technical specifications can be modified to comply with special requirements / Las especificaciones pueden bajo requerimiento adaptarse a proyectos especiales
Technical specifications may change without further notice / Por motivos comerciales o técnicos las especificaciones pueden cambiar sin previo aviso.
(*N1): Output voltage is selectable by LCD / El Voltaje de salida es configurable entre 4 alternativas seleccionables en el LCD
(*N2): Backup time for programable outlets is configurable (in minutes) by LCD to offer longer time to critical loads connected to normal outlets
La autonomía de las salidas programables es configurable (en min.) en el LCD para dejar mayor autonomía para las salidas normales
(*N3): Converter Mode Function allows to set output frequency at constant value: 50Hz or 60Hz when input Frequency is within 40 - 70 Hz
El modo de Conversión de Frecuencia permite fijar la salida a 50 o 60Hz siempre que la frecuencia de entrada se mantenga entre 40 y 70 Hz.
** Derate capacity to 60% of total capacity when Frequency converter mode is activated.
When the output voltage is adjusted to 208VAC (in 220Vac models) output capacity derates to 80%.
** La capacidad en VA/ Watts se degrada y baja hasta el 60% en modo "Convertidor de Frecuiencia".
Cuando el voltaje de salida se ajusta a 208Vac (en los modelos de 220Vac) se pierde un 20% de capacidad de salida.
** Maximum working altitud is 4.000m. Over 1.000m output derates 1% every 100m.
Altura máxima de operación es 4.000m. Sobre los 1.000m la potencia de salida disminuye un 1% cada 100m.